

## General

### Guideline Title

Guideline for a safe environment of care, part 1.

### Bibliographic Source(s)

Burlingame B, Conner R. Guideline for a safe environment of care, part 1. In: 2015 guidelines for perioperative practice. Denver (CO): Association of periOperative Registered Nurses (AORN); 2012 Dec. p. 239-63. [165 references]

### Guideline Status

This is the current release of the guideline.

## Recommendations

### Major Recommendations

Note from the Association of periOperative Nurses (AORN): The potential for injuries related to exposure to bloodborne pathogens, radiation, surgical smoke, and chemotherapeutic agents are outside the scope of this document. Patient injuries related to incorrect tubing connections and requirements for heating, ventilation, and air conditioning also are outside the scope of this document. The recommendations for these topics are addressed in other Association of periOperative Registered Nurses (AORN) recommended practices documents.

- I. Precautions should be taken to mitigate the risk of occupational injuries that may result in death, days lost from work, work restrictions, medical treatment beyond first aid, and loss of consciousness (Boden et al., 2012).
- II. Potential hazards associated with fire safety in the practice setting should be identified, and safe practices for communication, prevention, suppression, and evacuation should be established and followed.
- III. Precautions should be taken to mitigate the risk of injury associated with the use of electrical equipment.
- IV. Precautions should be taken to mitigate hazards associated with non-functioning clinical and alert alarms or with personnel failing to hear or failing to act on alarms.
- V. Precautions should be taken to avoid thermal injuries related to warming solutions, blankets, and patient linens in blanket- and solution-warming cabinets.
- VI. Precautions should be taken to mitigate risks associated with handling, storage, and use of compressed medical gas cylinders and liquid oxygen containers.
- VII. Precautions should be taken to mitigate hazards related to waste anesthesia gases.
- VIII. A protocol to establish a natural rubber latex–safe environment should be developed and implemented.
- IX. Precautions must be taken to mitigate the risks associated with the use of chemicals in the perioperative setting (e.g., methyl methacrylate, glutaraldehyde, formalin, ethylene oxide) ("Hazard communication," 2012; "Occupational safety and health standards," 2012).
- X. Precautions should be taken to avoid hazards associated with handling waste.

- XI. Perioperative personnel should receive initial and ongoing education and competency validation and assessment for establishing a safe environment of care ("Ambulatory surgical services," 2011; "Conditions of participation for hospitals," 2010).
- XII. Documentation reflecting activities related to providing a safe environment of care should be recorded in a manner consistent with the health care organization's policies and procedures.
- XIII. Policies and procedures for the provision of a safe environment of care should be developed, reviewed periodically, revised as necessary, and readily available in the practice setting.
- XIV. Perioperative personnel should participate in a variety of quality assurance and performance improvement activities that are consistent with the health care organization's plan to improve understanding of and compliance with the principles and processes of maintaining a safe environment of care.

## Clinical Algorithm(s)

None provided

## Scope

### Disease/Condition(s)

Any condition requiring the use of surgical and other invasive procedure–related equipment

### Guideline Category

Prevention

### Clinical Specialty

Nursing

Preventive Medicine

Surgery

### Intended Users

Advanced Practice Nurses

Nurses

Physicians

### Guideline Objective(s)

To provide guidance for providing a safe environment of care related to patients and perioperative personnel and the equipment used in the perioperative environment

Note: The potential for injuries related to exposure to bloodborne pathogens, radiation, surgical smoke, and chemotherapeutic agents are outside the scope of this document. Patient injuries related to incorrect tubing connections and requirements for heating, ventilation, and air conditioning also are outside the scope of this document.

### Target Population

- Patients undergoing surgical and other invasive procedures

- Perioperative health personnel

## Interventions and Practices Considered

1. Precautions to mitigate the risk of occupational injuries
2. Fire safety
  - Identification of potential hazards
  - Establishment of safe practices
3. Electrical equipment safety
4. Precautions regarding non-functioning clinical and alert alarms
5. Precautions to avoid thermal injuries related to warming solutions, blankets, and patient linens in blanket- and solution-warming cabinets
6. Precautions to mitigate risks associated with handling, storage, and use of compressed medical gas cylinders and liquid oxygen containers
7. Precautions to mitigate hazards related to waste anesthesia gases
8. Protocol to establish a natural rubber latex-safe environment
9. Precautions to mitigate the risks associated with the use of chemicals in the perioperative setting (e.g., methyl methacrylate, glutaraldehyde, formalin, ethylene oxide)
10. Precautions to avoid hazards associated with handling waste
11. Initial and ongoing education and competency validation for perioperative personnel
12. Documentation of activities related to providing a safe environment of care
13. Quality assurance and performance improvement activities for perioperative personnel

## Major Outcomes Considered

- Signs and symptoms of injury related to thermal, electrical, chemical sources, or extraneous objects
- Prevention of injury
- Safety and efficacy of interventions and protocols
- Risk of injury to patients and/or health care workers

## Methodology

### Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

### Description of Methods Used to Collect/Select the Evidence

A medical librarian conducted a systematic literature search of the databases MEDLINE®, CINAHL®, Scopus®, and Cochrane Database of Systematic Reviews for meta-analyses, randomized and nonrandomized trials and studies, systematic and nonsystematic reviews, and opinion documents and letters. Search terms included operating room, ambulatory surgery center, perioperative nursing, nursing, nurses, surgical procedures, anesthesia, electrosurgery, diathermy, ventilation, smoke, surgical smoke, security measures, violence, occupational accidents, occupational diseases, musculoskeletal diseases, lifting, transportation of patients, patient positioning, human engineering, ergonomics, latex hypersensitivity, security measures, violence, security risk, fire blanket, fire safety, fires, smoke plume, clinical alarms, anesthetics, gas scavengers, compressed gas, compressed medical gas, methyl methacrylate, occupational exposure, hazardous waste, hazardous substances, waste products, hazardous upon disposal, protective clothing, tubing misconnection, spontaneous abortion, miscarriage, and abnormality.

The search was limited to articles published in English and between the years 2005 and 2011; the librarian also established continuing alerts on the environment of care topics and contacted a federal agency for guidance. The lead author and medical librarian also identified relevant guidelines from government agencies and standards-setting bodies and consulted equipment specifications. In addition, the lead author identified and

requested other guidelines and professional literature as deemed appropriate.

## Number of Source Documents

A total of 277 articles met the inclusion criteria and were included in the review.

## Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Not Given)

## Rating Scheme for the Strength of the Evidence

Not stated

## Methods Used to Analyze the Evidence

Systematic Review

## Description of the Methods Used to Analyze the Evidence

Articles identified by the search were provided to the project team for evaluation. The team consisted of the lead author, three members of the Recommended Practices Advisory Board, one member of the Research Committee, and one doctorally prepared evidence appraiser. The lead author divided the search results into topics and assigned members of the team to review and critically appraise each article using the Johns Hopkins Evidence-Based Practice Model and the Research or Non-Research Evidence Appraisal Tools as appropriate. The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score as agreed upon by consensus of the team. The appraisal score is noted in brackets after each reference, as applicable in the original guideline document.

## Methods Used to Formulate the Recommendations

Expert Consensus

## Description of Methods Used to Formulate the Recommendations

The collective evidence supporting each intervention within a specific recommendation was summarized and used to rate the strength of the evidence using the Oncology Nursing Society Putting Evidence into Practice (ONS PEP®) schema. Factors considered in review of the collective evidence were the quality of research, quantity of similar studies on a given topic, and consistency of results supporting a recommendation. The evidence rating is noted in brackets after each intervention in the original guideline document.

## Rating Scheme for the Strength of the Recommendations

1: Strong Evidence: Interventions or activities for which effectiveness has been demonstrated by strong evidence from rigorously-designed studies, meta-analyses, or systematic reviews, rigorously-developed clinical practice guidelines, or regulatory requirements.

- Evidence from a meta-analysis or systematic review of research studies that incorporated evidence appraisal and synthesis of the evidence in the analysis.
- Supportive evidence from a single well-conducted randomized controlled trial.
- Guidelines that are developed by a panel of experts, that derive from an explicit literature search methodology, and include evidence appraisal and synthesis of the evidence.

1: Regulatory Requirement: Federal law or regulation.

2: Moderate Evidence: Interventions or activities for which the evidence is less well established than for those listed under "Strong Evidence."

- Supportive evidence from a well-conducted research study.
- Guidelines developed by a panel of experts which are primarily based on the evidence but not supported by evidence appraisal and synthesis of the evidence.
- Non-research evidence with consistent results and fairly definitive conclusions.

3: Limited Evidence: Interventions or activities for which there is currently insufficient evidence or evidence of inadequate quality.

- Supportive evidence from a poorly conducted research study.
- Evidence from non-experimental studies with high potential for bias.
- Guidelines developed largely by consensus or expert opinion.
- Non-research evidence with insufficient evidence or inconsistent results.
- Conflicting evidence, but where the preponderance of the evidence supports the recommendation.

4: Benefits Balanced With Harms: Selected interventions or activities for which the Association of periOperative Registered Nurses (AORN) Recommended Practices Advisory Board (RPAB) is of the opinion that the desirable effects of following this recommendation outweigh the harms.

5: No Evidence: Interventions or activities for which no supportive evidence was found during the literature search completed for the recommendation.

- Consensus opinion

## Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

## Method of Guideline Validation

External Peer Review

Internal Peer Review

## Description of Method of Guideline Validation

The Recommended Practices for a Safe Environment of Care have been approved by the Association of periOperative Registered Nurses (AORN) Recommended Practices Advisory Board. They were presented as proposed recommendations for comments by members and others. They are effective December 15, 2012.

## Evidence Supporting the Recommendations

## References Supporting the Recommendations

Ambulatory surgical services, 42 CFR Â§416. 2011.

Boden LI, Sembajwe G, Tveito TH, Hashimoto D, Hopcia K, Kenwood C, Stoddard AM, Sorensen G. Occupational injuries among nurses and aides in a hospital setting. Am J Ind Med. 2012 Feb;55(2):117-26. [PubMed](#)

Conditions of participation for hospitals, 42 CFR Â§482. 2010.

Hazard communication: toxic and hazardous substances, 29 CFR Â§1910.1200. 2012.

Occupational safety and health standards, toxic and hazardous substances, definition of "trade secret" (mandatory), 29 CFR Â§1910.1200E. 2012.

## Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified for some of the recommendations (see the "Major Recommendations" field). See the full guideline document for systematic review and discussion of evidence.

## Benefits/Harms of Implementing the Guideline Recommendations

### Potential Benefits

Prevention of patient and health care worker injury

### Potential Harms

Not stated

## Qualifying Statements

### Qualifying Statements

- These recommended practices represent the Association's official position on questions regarding optimal perioperative nursing practice.
- No attempt has been made to gain consensus among users, manufacturers, and consumers of any material or product.
- Compliance with the Association of periOperative Nurses (AORN) recommended practices is voluntary.
- AORN's recommended practices are intended as achievable and represent what is believed to be an optimal level of patient care within surgical and invasive procedure settings.
- Although they are considered to represent the optimal level of practice, variations in practice settings and clinical situations may limit the degree to which each recommendation can be implemented.

## Implementation of the Guideline

### Description of Implementation Strategy

An implementation strategy was not provided.

### Implementation Tools

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

# Institute of Medicine (IOM) National Healthcare Quality Report Categories

## IOM Care Need

Staying Healthy

## IOM Domain

Safety

## Identifying Information and Availability

### Bibliographic Source(s)

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### Adaptation

Not applicable: The guideline was not adapted from another source.

### Date Released

2012 Dec

### Guideline Developer(s)

Association of periOperative Registered Nurses - Professional Association

### Source(s) of Funding

Association of periOperative Registered Nurses (AORN)

### Guideline Committee

Association of periOperative Registered Nurses (AORN) Recommended Practices Advisory Board

### Composition of Group That Authored the Guideline

*Lead Author:* Byron Burlingame, MS, BSN, RN, CNOR

*Contributing Author:* Ramona Conner, MSN, RN, CNOR

*Team Members:* Antonia B. Hughes, MA, BSN, RN, CNOR; Elizabeth A. P. Vane, MSN, RN, CNOR; Rebecca M. Patton, MSN, RN, CNOR, FAAN; Rev Donna S Nussman, PhD, RN

## Financial Disclosures/Conflicts of Interest

No financial relationships relevant to the content of this guideline have been disclosed by the authors, planners, peer reviewers, or staff.

## Guideline Status

This is the current release of the guideline.

## Guideline Availability

Electronic copies: Not available at this time.

Print copies: Available from the [Association of periOperative Registered Nurses \(AORN\) Web site](#) .

## Availability of Companion Documents

The following is available:

- What can I find in the Recommended Practices for a Safe Environment of Care? Webinar. Available from the [Association of periOperative Nurses \(AORN\) Web site](#) .

## Patient Resources

None available

## NGC Status

This NGC summary was completed by ECRI Institute on April 17, 2013. The information was verified by the guideline developer on May 21, 2013.

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